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- 2 -

Summary of the Invention

In a first aspect the present invention provides a distributor plate for an impelling rotor of a rotating shaft impactor, where the impelling rotor is a chamber arranged in use to rotate about an axis and to radially eject material received therein through one or more ejection ports in a side wall of the chamber, the distributor plate being in use held in a fixed position with respect to the impelling rotor, wherein the distributor plate includes a body and a single wear element only, the single wear element being positioned on the body to alone cover an outer surface of the body onto which the material would otherwise be received. Such a wear element can reduce the severity of abrasive wear experienced by the body due to the movement of material across the distributor plate and thus prolong the time before replacement of the entire distributor plate is required. The use of a single wear element also prevents the development of preferential wear sites at corners, edges, join lines etc, which occurs with the known distribution plates that have a two or more part surface.

Preferably the outer surface of the wear element is substantially planar. A substantially flat surface facilitates rapid and easy expulsion of material from the rotor chamber. The use of the substantially flat distributor plate ensures that the centre of the rotor is less liable to blockage during use because the volume of available space in the rotor chamber is large enough to allow an easier passage of higher volumes of feed material, or feed materials which have a coarser overall particle size.

Preferably a surface of the wear element is affixed to a mating surface of the body. Most preferably the mating surface is substantially planar.

- 5 -

radially eject materials received therein through one or more ejection ports in a side wall of the chamber, the distributor plate including a single wear element positioned on a body to alone cover an outer surface of the body and either of an opposing surface of the body or the wear element including a projection which locates the wear element on the body.

Preferably the projection of the fifth aspect is located at the edge of the body and around its periphery. Most preferably the projection is an upwardly projecting circumferential lip or a partial circumferential lip.

In a sixth aspect the present invention provides a mounting for supporting a distributor plate in an impelling rotor of a rotating shaft impactor, where the impelling rotor is a chamber arranged in use to rotate about an axis and to radially eject materials received therein through one or more ejection ports in a side wall of the chamber, the distributor plate having a multi-sided basal spigot receivable in a multi-sided recess in the mounting, wherein the number of sides of the recess is a multiple greater than one of the number of sides of the spigot. It is therefore possible to move (rotate) the distributor plate with respect to the mounting into multiple "wear" positions to spread the abrasive wearing evenly over the distributor plate over time, rather than only having a limited number of grooves worn thereinto. Such a facility thus enables thinner wear plates to be used in such apparatus which reduces the unit cost and weight of the distributor plates.

Preferably the mounting is incorporated in a plate on which the distributor plate rests.

Alternatively the mounting is incorporated in a rotatable shaft of the rotating shaft impactor.

- 9 -

such apparatus the hammer elements are not necessarily connected to any circular top plate to define a rotor chamber.

In the present invention the distributor plate 10 is
5 removeable for servicing, replacement etc. In one embodiment, the plate has a substantially planar single-piece upper surface 24 onto which the feed materials are received. This substantially flat surface 24 facilitates rapid and easy expulsion of feed materials from the rotor
10 chamber 12. In a plan view the flat surface 24 shown is circular, having a diameter substantially equivalent to the width of the entry port 22. In further embodiments the distributor plate can be of a different diameter to the width of the entry port 22.

15 In known rotor devices the upper surface of the distributor plate is commonly conical, or is sloped radially downwardly from a peak height located at the centre of the distributor plate at the centreline A-A of the rotor. The centre of such distributor plates includes
20 a hole for placement of a centre bolt which fastens the distributor plate to the rotor. In these known devices the distributor plate commonly has a two or more part upper surface including a central conical portion and an annular peripheral portion joined to the central conical
25 portion, with the peripheral portion being more gently sloped radially outwardly than the conical portion. In such devices the conical portion is inserted for protecting the centre bolt, the conical portion usually having an upper surface which includes wear resistant
30 materials.

The use of a substantially flat distributor plate 10 ensures that the centre of the rotor is less liable to blockage during use because the volume

- 19 -

Claims

1. A distributor plate for an impelling rotor of a rotating shaft impactor, where the impelling rotor is a chamber arranged in use to rotate about an axis and to radially eject material received therein through one or more ejection ports in a side wall of the chamber, the distributor plate being in use held in a fixed position with respect to the impelling rotor, wherein the distributor plate includes a body and a single wear element only, the single wear element being positioned on the body to alone cover an outer surface of the body onto which the material would otherwise be received.
2. A distributor plate as claimed in claim 1 wherein the outer surface of the wear element is substantially planar.
3. A distributor plate as claimed in claim 1 or claim 2 wherein a surface of the wear element is affixed to a mating surface of the body.
4. A distributor plate as claimed in claim 3 wherein the mating surface is substantially planar.
5. A distributor plate as claimed in any one of the preceding claims wherein the wear element is a plate.
6. A distributor plate as claimed in claim 5 wherein the wear element is a circular disc.
7. A distributor plate as claimed in any one of the preceding claims wherein the wear element is made of a wear resistant material.

- 22 -

and to radially eject materials received therein through one or more ejection ports in a side wall of the chamber, the distributor plate including a single wear element positioned on a body to alone cover an outer surface of the body and either of an opposing surface of the body or the wear element including a projection which locates the wear element on the body.

18. A distributor plate as claimed in claim 17 wherein the projection is located at the edge of the body and around its periphery.

19. A mounting for supporting a distributor plate in an impelling rotor of a rotating shaft impactor, where the impelling rotor is a chamber arranged in use to rotate about an axis and to radially eject materials received therein through one or more ejection ports in a side wall of the chamber, the distributor plate having a multi-sided basal spigot receivable in a multi-sided recess in the mounting, wherein the number of sides of the recess is a multiple greater than one of the number of sides of the spigot.

20. A mounting as claimed in claim 19 wherein the mounting is incorporated in a plate on which the distributor plate rests.

21. A mounting as claimed in claim 19 wherein the mounting is incorporated in a rotatable shaft of the rotating shaft impactor.

22. A mounting plate as claimed in any one of claims 19 to 21 wherein the recess is a twelve-pointed star shaped